SUMMARY OF UNRESOLVED ISSUES IDENTIFIED TO DATE
Version 1.0 09-13-2010

ARCADIS
Infrastructure, environment, buildings

ISSUE NO.	ISSUE AREA	ISSUE	COMMENTS
	POLICY		
	Ecosystem & Water Management		
1		**Compliance with CA SBX7 1 - Delta Reform Act**	
1-a		Alternatives: Based on our review to date, BDCP does not appear to fully evaluate a wide range of alternatives for conveyance and conservation measures. BDCP stakeholders have suggested that a revised purpose and need statement be developed.	Additional ARCADIS review needed, awaiting information from BDCP team.
			Though a number of alternatives are being considered, it is unclear that these constitute a "full range."
			There may be insufficient schedule to address this issue prior to release of BDCP public draft document.
			Four objectives were identified to meet the purpose: restoring the ecosystem, ensuring adequate water supplies, improving water quality, and strengthening levees. BDCP does not appear to include evaluation of alternatives that will reduce exports. Can BDCP achieve its purpose if it includes evaluation of a reduced exports alternative?
			A follow-up to the benefit-costs analysis for environmental flows and agricultural exports in the recent publication of the SWRCB Delta Environmental Flow Requirement is needed to support BDCP's identification of a range of alternatives in order to achieve a balanced proposal supporting coequal goals of ecosystem restoration and system reliability.
			A goal of Delta Reform Act is to restore critical ecological habitats and reduce the reliance on the Delta as a source for water exports. Can improved reliability be achieved with reduced water exports that have a greater certainty of delivery? At this time BDCP does not appear to notably reduce reliance on water exports from the Delta.
1-b		Flow Criteria: BDCP as yet does not fully apply SWRCB flow criteria.	The importance of flow criteria is defined by law and is explicit as to the intended use: “For the purpose of informing planning decisions for the Delta Plan and the Bay Delta Conservation Plan, the board shall, pursuant to its public trust obligations, develop new flow criteria for the Delta ecosystem necessary to protect public trust resources.” (Water Code § 85086(c)).
1-c		Operations: BDCP does not appear to consider a full range of both near- and long-term operations scenarios.	Additional ARCADIS review needed, awaiting information from BDCP team.

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	PROGRAMMATIC		
	Ecosystem & Water Management		
2		Purpose statement: The BDCP project purpose statement suggests supporting full contract delivery requirements but is vague in providing objectives for restoration and species recovery.	Additional ARCADIS review needed, awaiting information from BDCP team.
3		Project Description: The BDCP project description still needs to be determined.	BDCP is the overall plan/program needed to address HCP/NCCP requirements; the Delta Habitat Conservation and Conveyance Plan (DHCCP) is the BDCP "project" that will be analyzed under CEQA/NEPA. Additional ARCADIS review needed, awaiting information from BDCP team.
4		Goals and objectives: BDCP goals and objectives are not specific.	Additional ARCADIS review needed, awaiting information from BDCP team.
5		Governance: Proposed BDCP governance, including definition of the management entity, operations, and real-time decision-making processes, is not yet well defined.	Additional ARCADIS review needed, awaiting information from BDCP team.
6		Plan framework: At this time a complete and integrated framework for BDCP development and implementation is missing.	It is not clear how all pieces of BDCP will fit together. The overall implementation plan lacks detail. We are aware that ongoing activities in this area are occurring but we have not yet seen the results of these activities. Additional ARCADIS review needed, awaiting information from BDCP team.
7		Adaptive Management: There is inadequate development of a comprehensive adaptive management plan for conservation measures and operational ranges.	The adaptive management plan does not fully integrate technical information into a management and implementation plan; the plan needs informed, clear performance objectives and an outcome-based strategy. While progress in the Adaptive Management Plan (AM) has occurred, further effort is needed to integrate governance with AM. ARCADIS is conducting ongoing review.
8		Schedule: There appears to be insufficient time to adequately address comments already received and to provide a complete evaluation of alternatives prior release of the draft BDCP document on November 18, 2010.	Current BDCP draft document schedule will not likely allow enough time for resolution of pending comments and concerns raised by stakeholders and Independent Science Advisors. BDCP stakeholders have also expressed concern regarding the currently anticipated timing/release of the draft BDCP document prior to the draft EIR/EIS. It has been noted that the BDCP Planning Agreement requires concurrent release to facilitate adequate public review and comment.
9		Funding: The cost of BDCP implementation, sources of funds, and share arrangements have not yet been identified.	Required HCP funding assurances as stipulated by the HCP process have not been established. At this time, the cost of BDCP implementation, the sources of fundings, the share arrangements, and funding guarantees are not well defined. Additional ARCADIS review needed, awaiting information from BDCP team.

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	REGULATORY		
	Ecosystem		
10		HCP: There does not appear to be compliance with the federal agencies "White Paper on Application of the 5 Point Policy-04-29-10" guidance to BDCP.	BDCP needs to address uncertainties in HCP/NCCP, adaptive management, and monitoring to ensure that the plan will meet its conservation goals. Explicit biological goals and objectives are needed to provide the basis for proposed conservation measures.
			So that USFWS and NOAA NMFS can issue permits, BDCP must include clearly defined and scientifically supported biological goals and objectives; an adaptive management plan that tests alternative strategies for meeting those biological goals and objectives; and a robust framework for adjusting future conservation actions. The linkages between individual conservation measures and the restoration actions that achieve those objectives need to be more clearly defined.
			Background details are needed to show how other complex HCPs have addressed uncertainties.
			Consistency and/or conflicts with other currently existing HCPs (e.g., Yolo County) must be addressed and resolved. ARCADIS is conducting ongoing review.
11		NCCP: Based on our review to date, BDCP conservation outcomes do not appear to be linked to recovery, nor are outcomes demonstrated to be equivalent to recovery.	To satisfy HCP/NCCPP requirements the BDCP will need to clearly describe the proposed approach to avoid, minimize, and mitigate, to the maximum extent practicable, impacts on covered species and their habitats while allowing for operations, maintenance, and construction. As an NCCP, the BDCP not only needs to address impact mitigation but will also need to demonstrate an effective species recovery program and to support delisting of listed species and help preclude the need to list additional species in the future. Population metrics should link habitat-specific attributes of quantitative estimates of abundance and quantitative measures of movement and distribution. In addition the BDCP performance metrics must relate to fish vital demographic rates. Additional ARCADIS needed.

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	TECHNICAL		
	Ecosystem & Water Management		
12		Modeling Assessments: The role and adequacy of modeling assessments is unclear based on our review to do date.	Our ongoing review is based on limited publicly available information. A clear presentation describing BDCP's integrated modeling program is currently unavailable. The methods and assumptions should be presented in a transparent fashion and additional hydrodynamic modeling assessments should be performed. There are additional needs to optimize benefits and better manage risks for covered species through more refined modeling analyses and a closer examination of the interrelationships between measures. Application of finer scale modeling tools (e.g., daily time step modeling) may be needed.
13		Logic Chain: To date there appears to be an incomplete development and integration of the logic chain into the BDCP document; the biological goals and objectives are not clear.	Additional ARCADIS review needed. A logic chain has been strongly recommended by the Delta Science Program as a means to provide the overall structure/foundation and necessary linkages to ensure that selected BDCP conservation measures (actions) will achieve the BDCP's specific biological goals and objectives (to be defined) and the associated broad ecosystem and species recovery goals. The logic chain framework also defines the flow of information that supports the adaptive management process to identify what has been learned and how this information will be used to inform ongoing actions and to facilitate a real-time decision-making process. The biological goals for each conservation measure need to link to the stressors/limiting factors, which are tied to the BDCP goals and objectives. Each level needs to roll-up to global goals and objectives. Metrics should link habitat-specific attributes of quantitative estimates of abundance, and quantitative measures of movement and distribution. BDCP performance metrics must be measureable and relate or link to fish vital demographic rates. The current logic chains are species-specific due to a wide range of life histories and ecological requirements of each species. A logic chain based on a community and ecosystem is also needed to provide a broader evaluation of ecosystem health. ARCADIS is conducting ongoing review.
14		Ecological Models: The ecological models are inadequately integrated.	Additional ARCADIS review needed, awaiting information from BDCP team. Better information on the survival and growth of covered species and predators in the Yolo Bypass, Cache Slough, and Sacramento River is needed to establish baseline conditions against which covered species benefits resulting from implementing the conservation measures can be determined and documented.
15		Stressors: At this time there appears to be a need for more direct linkages between stressors, conservation measures, and goals and objectives. Those stressors that will not be addressed by BDCP actions need to be clearly identified.	Additional ARCADIS review needed, awaiting information from BDCP team.

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16		Species Benefits: At this time anticipated species specific restoration benefits vs. integrated ecosystem benefits are unclear.	Additional ARCADIS review needed, awaiting information from BDCP team. The BDCP adaptive management plan is not currently linking conservation measures and predicted outcomes. More detail is needed to link these elements and identify the necessary compliance and performance monitoring.
17		Flow Criteria	Additional ARCADIS review is needed; SWRCB recommendations should be addressed. Flow criteria, including quantity and patterns, for covered fish species and other aquatic species must be addressed. The quantity of water needed is clearly an important part of the inquiry. In addition to the quantity of water allowed to flow out of the Delta, an equally important question is timing. When does more water need to be released to support different life stages of fish? Given that there are multiple listed species that need protection, including both pelagic and anadramous fish, how can the different flow schedules and needs of all these fish be accommodated and reconciled? What level of contaminant reduction is needed to ensure adequate water quality? Flow into the Delta is of particular importance for anadramous fish and needs to be addressed.
18		Conveyance Alternatives	We have begun review of this topic based on limited publicly available information on DHCCP. Several conveyance design concepts have been identified including canal and tunnel options to support flows ranging from 3,000 to 15,000 cfs, and potential diversion locations have been identified along the Sacramento River in the North Delta. Possible conservation benefits and/or adverse impacts associated with various conveyance options have been generally discussed but are not well established. Risks (e.g., flood and seismic) are still yet to be evaluated.
19		Monitoring Plan and Scientific Investigations	Limited information related to this topic is currently available and we have just begun our review. A program needs to be developed to specifically identify what data will be collected to effectively measure those metrics designed for compliance and performance, and used to measure expected outcomes for both terrestrial and aquatic resources. These data will also need to support the decision-making process. Related information will include how data are collected, the frequency of collection (statistical power analysis) to increase significance and reduce uncertainty, and the cost of gathering that data to make future decisions. Proposed monitoring data analysis methodologies will also need to be defined.
20		Turbidity Effects	Insufficient information has been provided at this time to enable evaluation of turbidity effects on fish movement and survival. Additional ARCADIS review needed.

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21		Sacramento River and North Delta Impacts: The effects of flow diversion on listed species and critical habitat are not adequately evaluated at this time.	Additional ARCADIS review needed. Because of upstream and in-Delta diversions, the San Joaquin River provides little outflow through the Delta. If significant Sacramento River is diverted from the north Delta less fresh water from the Sacramento will flow into the central and south Delta and it is not clear how this will improve water quality or fish and aquatic habitat.
	FUTURE UNCERTAINTIES		
	Ecosystem & Water Management		
22		Climate change/Sea Level Rise	Additional ARCADIS review needed, awaiting information from BDCP team.
23		Flood and Risk Management	Additional ARCADIS review needed. There is limited information available from BDCP on flood management and other risks including potential for levee failure at this time.
24		Invasive Species: Limited measures for addressing invasive species impacts have been included at this time within the broad suite of conservation measures.	Additional ARCADIS review needed. Invasive species present ongoing and increasing risk to the distribution and viability of native aquatic organisms and communities within the Delta. The anticipated efficacy of proposed measures is not well supported and significant future uncertainty persists with regard to the effects of proposed BDCP actions on the distribution, abundance, and ecological influence of invasive species during and following BDCP implementation.
25		Conservation Measures: Changes to conservation measures caused by stressors identified from related actions or from the effects of operations have not been identified at this time.	Additional ARCADIS review needed, awaiting information from BDCP team.
26		Ability to Adapt to Future Changes: The ability of BDCP to adapt to changes in covered activities, regulations, and other circumstances does not appear to have been fully addressed to date.	Additional ARCADIS review needed, awaiting information from BDCP team.